

INTERNATIONAL SEARCH REPORT

International Application No

PCT/EP 03/06468

A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 B22D11/06

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 B22D

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the International search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	WO 98 04369 A (VOEST ALPINE IND ANLAGEN ;ACCIAI SPECIALI TERNI SPA (IT); GUASTO G) 5 February 1998 (1998-02-05) cited in the application the whole document	1-20
A	EP 0 714 715 A (THYSSEN STAHL AG ;USINOR SACILOR (FR)) 5 June 1996 (1996-06-05) cited in the application the whole document	1-20
A	EP 0 620 061 A (USINOR SACILOR ;THYSSEN STAHL AG (DE)) 19 October 1994 (1994-10-19) cited in the application the whole document	1-20
		-/-

 Further documents are listed in the continuation of box C. Patent family members are listed in annex.

* Special categories of cited documents :

- "A" document defining the general state of the art which is not considered to be of particular relevance
- "E" earlier document but published on or after the International filing date
- "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- "O" document referring to an oral disclosure, use, exhibition or other means
- "P" document published prior to the International filing date but later than the priority date claimed

- "T" later document published after the International filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the Invention

- "X" document of particular relevance; the claimed Invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

- "Y" document of particular relevance; the claimed Invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

- "&" document member of the same patent family

Date of the actual completion of the International search

11 September 2003

Date of mailing of the International search report

19/09/2003

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2
NL - 2280 HV Rijswijk
Tel (+31-70) 340-2040, Tx 31 651 epo nl,
Fax (+31-70) 340-3016

Authorized officer

Bergman, L

REST AVAILABLE COPY

INTERNATIONAL SEARCH REPORT

International Application No

PCT/EP 03/06468

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	EP 0 380 698 A (NISSHIN STEEL CO LTD) 8 August 1990 (1990-08-08) cited in the application the whole document ----	1-20
A	EP 0 285 963 A (NISSHIN STEEL CO LTD) 12 October 1988 (1988-10-12) cited in the application the whole document ----	1-20
A	EP 0 546 206 A (NIPPON STEEL CORP) 16 June 1993 (1993-06-16) abstract; claims 1,3; figures 1-3 ----	1-20
A	DE 100 56 916 A (SMS DEMAG AG) 23 May 2002 (2002-05-23) abstract; claim 1; figure 1 ----	1-20
A	US 5 154 222 A (BIRAT JEAN-PIERRE ET AL) 13 October 1992 (1992-10-13) the whole document ----	1-20
A	EP 0 390 924 A (NISSHIN STEEL CO LTD) 10 October 1990 (1990-10-10) the whole document ----	1-20

INTERNATIONAL SEARCH REPORT

International Application No

PCT/EP 03/06468

Patent document cited in search report	Publication date	Patent family member(s)		Publication date
WO 9804369	A 05-02-1998	IT AT AU DE DE EP WO JP JP KR US ZA	RM960552 A1 193471 T 3863597 A 69702211 D1 69702211 T2 0946317 A1 9804369 A1 3042896 B2 2000500704 T 2000029741 A 6378598 B1 9706786 A	02-02-1998 15-06-2000 20-02-1998 06-07-2000 22-02-2001 06-10-1999 05-02-1998 22-05-2000 25-01-2000 25-05-2000 30-04-2002 11-02-1998
EP 0714715	A 05-06-1996	FR AT AU AU BR CA CN CZ DE DE DK EP ES FI GR JP JP PL PT RO RU SK TR US ZA	2727337 A1 194526 T 675756 B2 3773895 A 9505565 A 2164046 A1 1130111 A , B 9503158 A3 69517924 D1 69517924 T2 714715 T3 0714715 A1 2149938 T3 955766 A 3034475 T3 3367809 B2 8206792 A 311265 A1 714715 T 115337 B 2145268 C1 145995 A3 960936 A2 5628359 A 9509737 A	31-05-1996 15-07-2000 13-02-1997 20-06-1996 04-11-1997 31-05-1996 04-09-1996 12-06-1996 17-08-2000 22-02-2001 06-11-2000 05-06-1996 16-11-2000 31-05-1996 29-12-2000 20-01-2003 13-08-1996 10-06-1996 29-12-2000 28-01-2000 10-02-2000 04-02-1998 21-11-1996 13-05-1997 29-05-1996
EP 0620061	A 19-10-1994	FR AT AU AU BR CA CN CZ DE DE DK EP ES FI GR JP KR PL RU	2703935 A1 132780 T 667158 B2 5926894 A 9401478 A 2121116 A1 1093308 A , B 9400838 A3 69400051 D1 69400051 T2 620061 T3 0620061 A1 2084530 T3 941711 A 3019532 T3 7051808 A 203564 B1 178562 B1 2125500 C1	21-10-1994 15-01-1996 07-03-1996 20-10-1994 18-10-1994 15-10-1994 12-10-1994 19-10-1994 22-02-1996 29-08-1996 06-05-1996 19-10-1994 01-05-1996 15-10-1994 31-07-1996 28-02-1995 15-06-1999 31-05-2000 27-01-1999

INTERNATIONAL SEARCH REPORT

International Application No

PCT/EP 03/06468

Patent document cited in search report	Publication date	Patent family member(s)		Publication date
EP 0620061	A	SK TR US ZA	41194 A3 28406 A 5437325 A 9402531 A	09-11-1994 07-06-1996 01-08-1995 13-10-1995
EP 0380698	A 08-08-1990	JP JP JP DE DE EP WO US	2037945 A 2061357 C 7087970 B 68905460 D1 68905460 T2 0380698 A1 9000948 A1 5207265 A	07-02-1990 10-06-1996 27-09-1995 22-04-1993 14-10-1993 08-08-1990 08-02-1990 04-05-1993
EP 0285963	A 12-10-1988	JP JP JP DE EP KR NO US	1987733 C 7012526 B 63252646 A 3869170 D1 0285963 A2 9605882 B1 881500 A , B, 4811780 A	08-11-1995 15-02-1995 19-10-1988 23-04-1992 12-10-1988 03-05-1996 10-10-1988 14-03-1989
EP 0546206	A 16-06-1993	JP JP JP EP US	2013500 C 4046656 A 7041376 B 0546206 A1 5201362 A	02-02-1996 17-02-1992 10-05-1995 16-06-1993 13-04-1993
DE 10056916	A 23-05-2002	DE AU WO EP	10056916 A1 2068602 A 0240200 A1 1337364 A1	23-05-2002 27-05-2002 23-05-2002 27-08-2003
US 5154222	A 13-10-1992	FR AU AU BR CA CN CN CS EP FI HU IE JP NO PL PT SU ZA	2656244 A1 634841 B2 6827590 A 9006506 A 2032065 A1 1054551 A 1054731 A , B 9006148 A3 0435729 A1 906309 A 56016 A2 904472 A1 4270034 A 905550 A 288416 A1 96232 A 1834744 A3 9010330 A	28-06-1991 04-03-1993 04-07-1991 01-10-1991 27-06-1991 18-09-1991 25-09-1991 19-02-1992 03-07-1991 27-06-1991 29-07-1991 03-07-1991 25-09-1992 27-06-1991 23-09-1991 30-09-1991 15-08-1993 29-07-1992
EP 0390924	A 10-10-1990	JP JP JP DE DE	2034253 A 2097978 C 8002479 B 68924589 D1 68924589 T2	05-02-1990 02-10-1996 17-01-1996 23-11-1995 05-06-1996

INTERNATIONAL SEARCH REPORT

International application No

PCT/EP 03/06468

Patent document cited in search report	Publication date	Patent family member(s)		Publication date
EP 0390924	A	EP	0390924 A1	10-10-1990
		WO	9000947 A1	08-02-1990
		US	5058657 A	22-10-1991

BEST AVAILABLE COPY